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## Fabrication and Characterization of Aromatic Polyimide Langmuir-Blodgett Film

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Polyimide is a well-known organic material, which has not only high chemical and thermal stability but also good electrical insulating and mechanical properties. Langmuir-Blodgett(LB) technique is a good method to deposit a polymer as a uniform film which has controlled structure and regularity. In this study, we prepared ultrathin polyimide films which have controlled thickness, defect-free and orientation by LB technique. These LB films have potential application in molecular electronic industries such as insulating layer, liquid crystal alignment and photoconductive device etc.

Two Polyimides, BPDA-ODA and BPDA-TFDB, based on an aromatic dianhydride (BPDA) and two aromatic diamines (ODA, TFDB) were used to prepare LB films. The LB films of polyamic acid salt were fabricated using multi chain *tert*-amine and the films were thermally imidized. They are characterized by means of X-ray diffraction (XRD), UV-VIS spectroscopy, Infrared (IR) spectroscopy, Ellipsometry and Atomic Force Microscopy (AFM). The d-spacing of BPDA-ODA and BPDA-TFDB polyamic acid LB films calculated from XRD is 5.08 and 4.20nm, respectively. These are consistent with the width of the expected bilayer structure from y-type deposition. The imidization of PAAS LB films is confirmed by IR spectroscopy. UV-VIS spectra of LB films give good relationship between the number of layers and the absorbances. The thickness and surface morphology of LB films are studied by Ellipsometry and AFM.

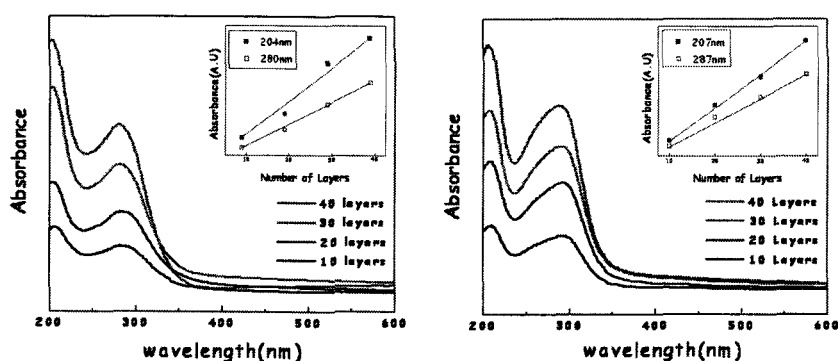


Fig 1. UV-VIS absorption spectra of PAAS LB film with various layers.